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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,472	07/15/2004	Kenji Kimura	P25659	7889
7055 7590 04/30/2009 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER				
LEE, CYNTHIA K				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/500,472

Applicant(s)

KIMURA ET AL.

Examiner

CYNTHIA LEE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

This Office Action is responsive to the amendment filed on 1/30/2009. Claims 1-19 are pending.

Applicant's arguments have been considered. Claims 1-19 are finally rejected for reasons stated herein below.

The Objection to the Specification has been withdrawn.

Specification

Applicant's arguments have been found persuasive in that the Specification pg 7, line 18 states that the lid is welded to the outer case. Thus, the word "swaging" would be proper.

The amendment to the Specification filed 12/12/2007 is entered.

Claims Analysis

The limitation "a hole configured to receive the electrolyte into the battery" has been considered but was not given patentable weight because it is not present in the final product. The Specification pg 13 lines 6-7 states that "the hole 9 is tightly sealed with the sealing means 10 to complete the battery 1."

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, and 13-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Terashi (JP 2000-340210).

All references refer to Fig. 1. Terashi discloses a battery comprising: an electrode assembly comprising a positive electrode plate (21) and a negative electrode plate (23), and a separator (22) wound or laminated together, core materials of the positive and negative electrode plates being bared respectively at ends of the electrode assembly (5); a cylindrical outer case having a bottom being connected to either end face of the electrode assembly to serve as a battery terminal (1); and a lid connected to the other end face of the electrode assembly and attached to the outer case with a sealer and an insulator interposed therebetween (12); and a safety structure that releases gas in response to a build-up of internal pressure (14).

Regarding claim 4, the lid is provided with a projection protruding to the inside of the outer case, and is welded to the bared portion of the core material of the electrode plate of the electrode assembly with the projection making tight contact therewith [0017].

Regarding claim 13, the Examiner notes that the lid on which the valve rests has a cut. It is necessarily continuous or discontinuous. See fig. 1.

Regarding claim 14, a current collector plate is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly, and after placing the electrode assembly in the outer case, the current collector plate is welded to the bottom of the outer case [0018].

Regarding claim 15, the outer case is provided with an inwardly protruding projection, which is welded to the bared portion of the core material of the electrode plate of the electrode assembly in the outer case in tight contact therewith (15 in fig. 1).

Terashi does not expressly disclose an electrolyte being impregnated in the electrode assembly (claim 2). However, the Examiner notes that a battery necessarily contains an electrolyte that conducts ions generated in the electrochemical reaction inside the battery can. Should it not be anticipatory, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of Terashi with an electrolyte for the benefit of conducting metal ions to make the battery functional.

Regarding the limitation "cylindrical portion" (Applicant's claim 19), Marukawa's connector 7 has a cylindrical portion shaped to received and connect to the bottom of another battery.

Regarding the limitation "the lid contacts and is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly," it is noted that the sealing plate 11 (or Applicant's lid) is welded to the current collection member 4

(which comprises the tab section 42 and monotonous section 43) [0017]. The current collection member 4 is welded to the current collection section 5 [0017]. It is further noted that the current collection section 5 is welded to one edge of an electrode 2. Thus, it is noted that the sealing plate 11 is welded to the electrode plate 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 6-8, 10, 11, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332).

All references refer to Fig. 1. Terashi discloses a battery comprising: an electrode assembly comprising a positive electrode plate (21) and a negative electrode plate (23), and a separator (22) wound or laminated together, core materials of the positive and negative electrode plates being bared respectively at either end; a cylindrical outer case having a bottom being connected to either end face of the electrode assembly to serve as a battery terminal (1); and a lid connected to the other end face of the electrode assembly and attached to the outer case with a sealer and an insulator interposed therebetween (12); and a safety structure that releases gas in response to a build-up of internal pressure (14).

Terashi does not expressly disclose an electrolyte being impregnated in the electrode assembly. However, the Examiner notes that a battery necessarily contains an electrolyte that conducts ions generated in the electrochemical reaction inside the battery can. Should it not be anticipatory, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of Terashi with an electrolyte for the benefit of conducting metal ions to make the battery functionable.

Terashi does not disclose wherein the lid includes a connecting part in one piece therewith that engages with and connects a bottom part of the outer case of another battery to be connected (claim 1). Marukawa teaches a lid includes a connecting part in one piece therewith that engages with and connects a bottom part of the outer case of another battery to be connected (1 in fig. 1). Regarding applicant's claims 10 and 17, bottom of the outer case of one battery being fitted into the connecting part of the lid of the other battery and their mating parts being welded together (Marukawa 4:65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a connecting piece of Marukawa to the battery of Terashi for the benefit of connecting two adjacent batteries stably. It is noted that Marukawa's connector 7 and the metal electrode are interpreted as being "one piece" or "unitary." Further, it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stoves Works*, 150 U.S. 164 (1893).

Regarding claim 3, the lid is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly to serve as a current collector plate [0017].

Regarding claim 6, the Examiner notes that the lid on which the valve rests has a cut. It is necessarily continuous or discontinuous. See fig. 1.

Regarding claim 7, a current collector plate is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly, and after placing the electrode assembly in the outer case, the current collector plate is welded to the bottom of the outer case [0018].

Regarding claim 8, the outer case is provided with an inwardly protruding projection, which is welded to the bared portion of the core material of the electrode plate of the electrode assembly in the outer case in tight contact therewith (15 in fig. 1).

Regarding claim 11, the lid is provided with a projection protruding to the inside of the outer case, and is welded to the bared portion of the core material of the electrode plate of the electrode assembly with the projection making tight contact therewith [0017].

Regarding the limitation "cylindrical portion" (Applicant's claim 18), Marukawa's connector 7 has a cylindrical portion shaped to received and connect to the bottom of another battery.

Regarding the limitation "the lid contacts and is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly," it is noted that the sealing plate 11 (or Applicant's lid) is welded to the current collection member 4

(which comprises the tab section 42 and monotonous section 43) [0017]. The current collection member 4 is welded to the current collection section 5 [0017]. It is further noted that the current collection section 5 is welded to one edge of an electrode 2. Thus, it is noted that the sealing plate 11 is welded to the electrode plate 2.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332) as applied to claim 1 above, and further in view of Ikoma (US 5663007).

Terashi modified by Marukawa discloses a cylindrical portion with a gasket interposed therebetween, but does not disclose the outer case and the cylindrical portion of the lid joined by a fixing groove formed by swaging.

Ikoma discloses of crimping a metal casing and a lid having a safely vent in conventional batteries (2:20-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mechanically join the lid with the outer casing in addition to the sealing gasket for the benefit of making the gasket tighter between the can and the lid.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) as applied to claim 2 above, in view of Ikoma (US 5663007).

Terashi modified by Marukawa discloses a cylindrical portion with a gasket interposed therebetween, but does not disclose the outer case and the cylindrical portion of the lid joined by a fixing groove formed by swaging.

Ikoma discloses of crimping a metal casing and a lid having a safely vent in conventional batteries (2:20-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mechanically join the lid with the outer casing in addition to the sealing gasket for the benefit of making the gasket tighter between the can and the lid.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332) as applied to claim 1 above, and further in view of Tucholski (US 2002/0031705) and the definition of "clad" (from The American Heritage Dictionary retrieved from <http://www.credoreference.com/entry/4073723>, on Aug 28, 2007).

Terashi modified by Marukawa does not disclose that the lid comprises a clad plate consisting of a plate material that is resistant to the electrolyte on a side facing the outer case. Tucholski teaches that the inner surface of cover 445, as well as the peripheral portion of the upper surface of cover 445, is coated with a layer 475 of electrical insulation material, such as an epoxy, nylon, Teflon.RTM., or vinyl. Additionally, the inner and outer surfaces of can 412 are also coated in the region of the open end of can 412. Such coatings 475 may be applied directly to the can and

cover by spraying, dipping, or electrostatic deposition. By providing such a coating, negative outer cover 445 may be electrically insulated from can 412 [0097]. By applying the insulation coating to the areas of the can, cover, and collector nail within the battery that are proximate the void area within the battery's internal volume, those areas may be protected from corrosion. While a coating consisting of a single layer of the epoxy, nylon, Teflon.RTM., or vinyl materials noted above will function to prevent such corrosion, it is conceivable that the coating may be applied using layers of two different materials or made of single layers of different materials applied to different regions of the components. For example, the peripheral region of the cover may be coated with a single layer of material that functions both as an electrical insulator and an anti-corrosion layer, while the central portion on the inner surface of the cover may be coated with a single layer of a material that functions as an anti-corrosion layer but does not also function as an electrical insulator. Such materials may include, for example, asphalt or polyamide [0098]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the inner face of the can with an anti-corrosion layer for the benefit of making the lid corrosion resistant and thus, increasing the service life of the battery.

The Examiner has taken the definition of "clad" to mean: to cover with a protective or insulating layer of other material, from The American Heritage Dictionary. Thus, the anti-corrosion resistant layer of Tucholski reads on the Applicant's "clad plate."

clad¹

 pronunciation

tr. v. **clad**, **clad·ding**, **clads**.

1. To sheathe or cover (a metal) with a metal.
2. To cover with a protective or insulating layer of other material.
[Back-formation from cladding.]

The American Heritage Dictionary of the English Language, © Houghton Mifflin Company 2003 

APA | MLA | Chicago : Citing this entry

clad 1. (2003). In *The American Heritage® Dictionary of the English Language*. Retrieved August 28, 2007, from <http://www.credoreference.com/entry/4073723>

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) as applied to claim 2 above, in view of Marukawa (US 5900332), Tucholski (US 2002/0031705), and the definition of "clad" (from The American Heritage Dictionary retrieved from <http://www.credoreference.com/entry/4073723>, on Aug 28, 2007).

Terashi modified by Marukawa does not disclose that the lid comprises a clad plate consisting of a plate material that is resistant to the electrolyte on a side facing the outer case. Tucholski teaches that the inner surface of cover 445, as well as the peripheral portion of the upper surface of cover 445, is coated with a layer 475 of electrical insulation material, such as an epoxy, nylon, Teflon.RTM., or vinyl. Additionally, the inner and outer surfaces of can 412 are also coated in the region of the open end of can 412. Such coatings 475 may be applied directly to the can and cover by spraying, dipping, or electrostatic deposition. By providing such a coating,

negative outer cover 445 may be electrically insulated from can 412 [0097]. By applying the insulation coating to the areas of the can, cover, and collector nail within the battery that are proximate the void area within the battery's internal volume, those areas may be protected from corrosion. While a coating consisting of a single layer of the epoxy, nylon, Teflon.RTM., or vinyl materials noted above will function to prevent such corrosion, it is conceivable that the coating may be applied using layers of two different materials or made of single layers of different materials applied to different regions of the components. For example, the peripheral region of the cover may be coated with a single layer of material that functions both as an electrical insulator and an anti-corrosion layer, while the central portion on the inner surface of the cover may be coated with a single layer of a material that functions as an anti-corrosion layer but does not also function as an electrical insulator. Such materials may include, for example, asphalt or polyamide [0098]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the inner face of the can with an anti-corrosion layer for the benefit of making the lid corrosion resistant and thus, increasing the service life of the battery.

The Examiner has taken the definition of "clad" to mean: to cover with a protective or insulating layer of other material, from The American Heritage Dictionary. Thus, the anti-corrosion resistant layer of Tucholski reads on the Applicant's "clad plate."

 pronunciation
tr. v. **clad, clad-ding, clads.**

1. To sheathe or cover (a metal) with a metal.
2. To cover with a protective or insulating layer of other material.
[Back-formation from cladding.]

The American Heritage Dictionary of the English Language. © Houghton Mifflin Company 2003 

APA | MLA | Chicago : Citing this entry
clad 1. (2003). In *The American Heritage® Dictionary of the English Language*. Retrieved August 28, 2007, from
<http://www.oxfordreference.com/entry/4073723>

Response to Arguments

Applicant's arguments filed 1/30/2009 have been fully considered but they are not persuasive.

Applicant asserts that it is unreasonable to construe Terashi's lid 11 as contacting the electrode object 2, as the lid 11 clearly does not touch the electrode object. Instead, the lid 11 is spaced apart from the electrode object 2, and electrically connected via tab section 42, monotonous section 43 and current collection section 5.

The Examiner respectfully disagrees. The claim recites that the lid is in "contact" with the electrode, and not "touch" the electrode.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/

/PATRICK RYAN/

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Supervisory Patent Examiner, Art
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